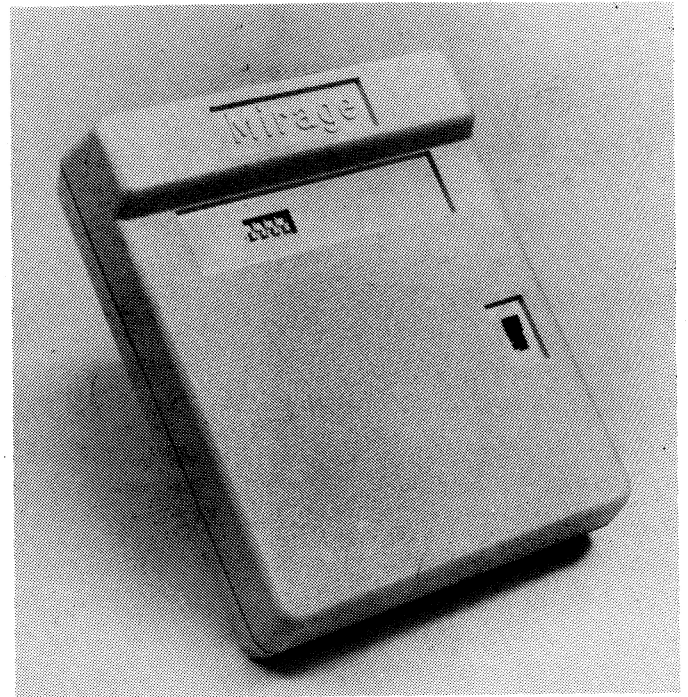


MIRAGE-QUAD™



OPERATIONS MANUAL

INTRODUCTION

The MIRAGE joystick interface is a two mode input device for controlling cursor movement with a CH Products joystick. It functions as a mouse in either of two modes with Apple IIe/IIc and Macintosh computers for software that requires mouse input.

COMPATITIBILITY

The MIRAGE-QUAD joystick interface allows a CH Products Apple compatible joystick to be used in place of a mouse on an Apple IIc, Apple Macintosh, and Macintosh Plus.

NOTE: This version of the MIRAGE INTERFACE does not work with the Apple IIgs, Macintosh SE, or Macintosh II. These computers require the Apple Desktop Bus version of the MIRAGE INTERFACE, which is available from CH Products dealers.

The MIRAGE can also be used with an Apple IIe if a mouse interface card is installed in the computer.

INSTALLATION

1. Turn off your computer.
2. Plug the nine pin male connector of the MIRAGE INTERFACE into the mouse connector at the back of your Apple IIc or Macintosh, or to the mouse card connector of your Apple IIe. Consult your operations manual if you have any questions about which connector is used for mouse input.
3. Connect a CH Products joystick into the nine pin female connector on the MIRAGE case.
4. Set the mode selector switch to the desired operating position (see MOUSE MODE SELECTION).
5. Set the Apple II(All) or Mac selector switch to the position that matches your computer.
6. Turn on the power to your computer.
7. Load your software.
8. Your MIRAGE is ready to go.

Electrical Centering Adjustments

Each axis (X and Y) on CH Products joysticks has an independent rotary trim to enable the operator to adjust the electrical center of the joystick. If the cursor drifts or goes to the side or top or bottom of the screen while in the RATE mode, adjust the axis trims with the following procedure:

1. Install the MIRAGE as described in INSTALLATION.
2. Move the absolute/rate selector switch to the rate position.
3. Set the joystick in the self-centering mode and allow the stick handle to center.
4. Move the joystick to make the cursor visible away from the sides or top and bottom of the screen.
5. The cursor should remain stationary when the joystick is released to its center position. If it is not, adjust the X and Y rotary trims until the cursor remains stationary. Make a small trim adjustment, move the stick to re-center the cursor, and make another small adjustment if necessary. The X axis trim affects left-right cursor motion and the Y axis trim affects up-down cursor motion.
6. This completes trim adjustment.

SETUP AND OPERATION

Mouse Absolute Mode Selection

The MIRAGE features an absolute mode in which cursor position is directly related to the joystick position. For example, if the joystick is pushed to the upper left corner, the cursor will move to the upper left corner of the screen, if the joystick is moved to the lower right corner, the cursor will move to the lower right corner of the screen. Cursor motion stops when joystick motion stops.

Select the ABSOLUTE mode by moving the ABSOLUTE/RATE selector switch to the ABSOLUTE position.

NOTE: The cursor may not always return exactly to the center of the screen even though the joystick is centered. This condition is normal and does NOT require re-adjustment of the joystick trims.

Mouse Rate Mode Selection

The MIRAGE has a rate mode in which the cursor moves in the direction in which the joystick is pushed away from center. The joystick is most conveniently used in the self-centering mode when in the MOUSE RATE mode, although it could be used in the free-floating mode without damage. When the joystick is centered,

cursor motion stops. The cursor may be at any position on the screen when the joystick is centered. The speed with which the cursor moves is related to how far the joystick is moved from center, and the maximum speed selected by the user. Maximum cursor speed is obtained at maximum joystick deflection, and can be set to one of four speeds.

Select the RATE mode by moving the ABSOLUTE/RATE selector switch to the RATE position. The cursor speed is set by depressing a combination of joystick pushbuttons at the time the ABSOLUTE/RATE selector switch is moved to the RATE position. The following chart lists the cursor speed and the combination of buttons that must be depressed to obtain the desired speed:

Speed	Buttons Depressed
High	None
Medium High	Button 1
Medium Low	Button 2
Low	Buttons 1 and 2 together

Buttons 1 and 2 can be determined by trial and error.

The cursor speed is set at HIGH when the MIRAGE INTERFACE is powered up, and can be changed at any time after power is applied without damage. Change the cursor speed by depressing and holding the combination of buttons listed above and moving the ABSOLUTE/RATE selector switch to RATE. In about ten (10) seconds, the new speed will be set in and ready for use.

NOTE: While the cursor speed is changing, there will be cursor motion to the top left corner of the screen. There may be some programs in which this will be a problem; if the cursor motion is a problem, you will need to set the speed before you start the program.

NOTE: If the cursor drifts while the control stick is centered or the cursor does not move in one direction, the joystick will need to be readjusted. See the section ELECTRICAL CENTERING ADJUSTMENTS to make this adjustment.

Pushbutton Function

All buttons on CH Products joysticks produce the same function as pressing the mouse button. The exact function is entirely dependent on the software.

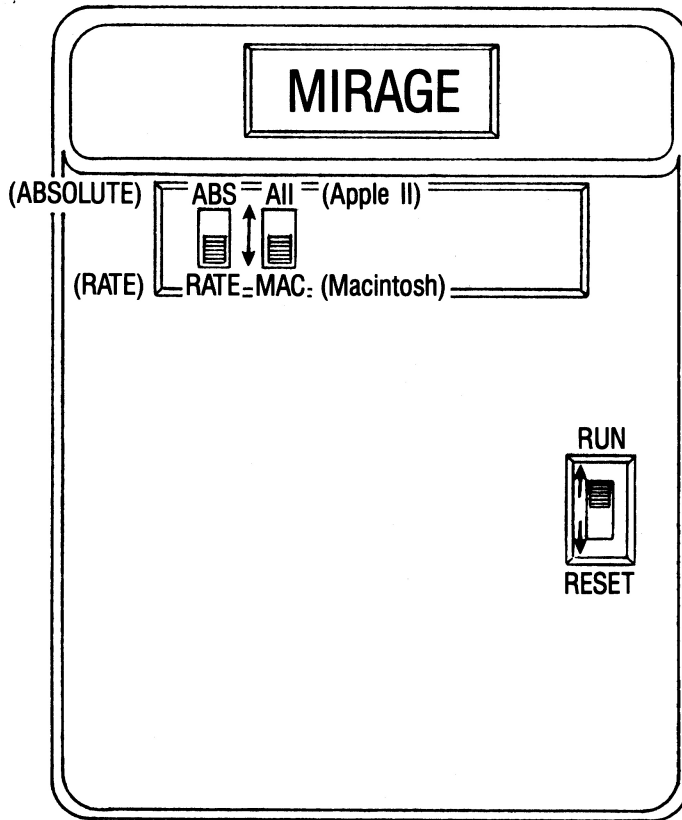


Figure 1

SPECIFICATIONS

SUPPLY VOLTAGE: +5 VOLTS $\pm 10\%$

CURRENT: 100 MA

OPERATING MODES: MOUSE ABSOLUTE

MOUSE RATE (selectable speeds)

CONNECTOR PIN ASSIGNMENTS

PIN #	ASSIGNMENT	
	MOUSE CONNECTOR	JOYSTICK CONNECTOR
1	SYSTEM GROUND	BUTTON 2
2	+5 VOLTS	+5 VOLTS
3	SYSTEM GROUND	SYSTEM GROUND
4	X1 (X DIRECTION)	NO CONNECTION
5	X0 (X MOVEMENT)	X AXIS POTENTIOMETER
6	NO CONNECTION	NO CONNECTION
7	MOUSE BUTTON	BUTTON 1
8	Y1 (Y DIRECTION)	Y AXIS POTENTIOMETER
9	Y0 (Y MOTION)	None

Apple IIc, IIe, and Macintosh are trademarks of Apple Computer, Inc.

RADIO AND TELEVISION INTERFERENCE

This equipment generates and uses radio frequency energy. If it is not installed and used properly, it may cause interference to radio and television reception.

This equipment has been tested and complies with the limits for a Class B computing device in accordance with the specifications of Subpart J, Part 15 of FCC regulations. These regulations are designed to provide reasonable protection against interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation.

If you suspect this device is causing unreasonable interference, remove it from the computer system in order to isolate the problem.

The user is encouraged to try to reduce the interference by one or more of the following measures:

- Reorient the receiving antenna.
- Relocate the computer with respect to the receiver.
- Move the computer away from the receiver.
- Plug the computer into a different outlet, so the computer and receiver are on different branch circuits.

The user may find the following book prepared by the Federal Communications Commission helpful: *HOW TO IDENTIFY AND RESOLVE RADIO-TV INTERFERENCE PROBLEMS*. This booklet is available from the US Government Printing Office, Washington, DC 20402, stock number 004-000-003454.

CH PRODUCTS
ONE YEAR LIMITED WARRANTY

CH Products MIRAGE is warranted to the original purchaser to be free from defects in materials and workmanship for a period of one year from the date of purchase. During the warranty period CH Products will, at its option, repair or replace, at no charge, any component which is determined to be defective.

The liability under this warranty is limited to the repair of and/or replacement of the defect or defective part at our factory and does not include shipping expenses.

To obtain warranty services, send the MIRAGE, postage prepaid, with a check for \$4.00 to cover shipping and handling, together with a dated proof of purchase to:

CH Products
Customer Service
1225 Stone Drive
San Marcos, CA 92069

The warranty does not apply if, in the opinion of CH Products, the MIRAGE has been damaged by accident, abuse, improper usage, or as a result of service or modification by other than CH Products.

"NO OTHER WARRANTIES ARE EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. CH PRODUCTS IS NOT RESPONSIBLE FOR CONSEQUENTIAL DAMAGES." Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

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